REMARKS

Claim 12 has been amended to formulate the invention more clearly and to differentiate it from the cited prior art of O'Sullivan under 103(a), which was cited against claim 12.

Namely, the amended claim 12 provides marking of all optical wavelength channels traveling through a fiber section between two nodes in an optical network with a FID dither tone indirectly, by marking all optical wavelength channels on the fiber section **with the same** dither tone, and identifying a number of possible faults in the network, which are indicative of the loss or deviation of the power of the FID tone or multiple FID tones from a predetermined value.

Additionally, if optical wavelength channels are equalized, it also provides a quick and simple way of visualizing an approximate traffic load through different fiber sections in the optical network by comparatively displaying power levels of FID tones at different FID tone frequencies, thus indicating that fiber sections having higher power levels of the FID tones carry larger numbers of optical wavelength channels.

In contrast, O'Sullivan is neither concerned with the identification of a fiber section in the optical network through marking of all wavelength channels traveling on the fiber section with the same dither tone modulation, nor concerned with identification of possible faults in the network, which are indicative of the loss or deviation of the FID tone power.

Instead it is concerned with identifying amplifiers in an optical network, wherein each amplifier is associated with its own unique code, and is marked directly with this code, which is different from the current invention wherein each fiber section is marked indirectly through marking wavelength channels traveling through the fiber section. Even if the marking of amplifiers of O'Sullivan were applied to the current invention, then it would not lead to the amended claim 12 as optical wavelength channels traveling through the fiber section in the network would have to be identified with respective unique codes and NOT with the same code as suggested by the amended claim 12, and no network faults would be associated with such markings. Additionally, O'Sullivan marking is not applicable to the current invention for the

reason that there may be more than one amplifier on a fiber section, or alternatively, there may be more than one fiber section going through an amplifier, and therefore O'Sullivan marking would lead to a confusion between fiber sections in the optical network.

Claims 1-11 and 13-21 have been canceled without prejudice and to avoid claim overlapping with the pending CIP application Ser. No. 10/136,407 filed May 02, 2002.

The Examiner is respectfully requested to reconsider this application with regard to the amendments to the claims presented above and the above arguments with a view to considering the claims favorably for allowance.

The Commissioner is hereby authorized to deduct any prescribed fees for these amendments, if required, from our Company's **Deposit Account No. 501832**.

Yours truly,
Wen LIU

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WHAT IS CLAIMED IS:

1. (Canceled) ~~A method for monitoring performance of an optical network, comprising the steps of:~~

~~marking an optical signal, traveling through a section of fiber, with a fiber identification (FID) tag which is unique to the fiber section; and~~

~~detecting the fiber identification tag at various locations in the network.~~

2. (Canceled) ~~A method as described in claim 1, wherein the step of marking comprises modulating the optical signal so that the fiber identification tag is encoded onto the optical signal.~~

3. (Canceled) ~~A method as described in claim 2, wherein the step of modulating comprises modulating the optical signal with the fiber identification tag, which is a low frequency dither signal.~~

4. (Canceled) ~~A method as described in claim 2, wherein the step of modulating the optical signal with the low frequency dither signal is performed by an amplitude modulation.~~

5. (Canceled) ~~A method as described in claim 2, wherein the step of modulating comprises one of the following types of modulation: frequency modulation, phase modulation and polarization modulation.~~

6. (Canceled) ~~A method as described in claim 4, wherein the step of modulating the optical signal with the low frequency dither signal comprises modulating with the low frequency dither tone whose frequency is unique to the fiber section.~~

7. (Canceled) ~~A method as described in claim 1, wherein the step of detecting the fiber identification tag comprises detecting the tag at a network node.~~

8. (Canceled) ~~A method as described in claim 4, wherein the step of detecting comprises:~~

~~tapping a portion of the optical signal; and~~

~~determining one or more of the following parameters from the tapped portion of the optical signal:~~

~~(a) frequency of the FID signal;~~

~~(b) depth of modulation of the optical signal introduced by the FID signal; and~~

~~(c) combined power of FID signals at the FID frequency.~~

9. (Canceled) ~~A method as described in claim 1, wherein the step of marking the optical signal is performed so that selected FID tags are accumulated in the optical signal as the signal travels in the network.~~

10. (Canceled) ~~A method as described in claim 1, wherein the step of marking the optical signal is performed so that one of the some and all of the previously introduced FID tags are removed from the optical signal.~~

11. (Canceled) ~~A method of detecting a fiber failure in an optical network, comprising the steps of:~~

~~monitoring performance of an optical network as described in claim 1; and~~

~~indicating the possibility of fiber failure for the fiber section whose fiber identification tag is not present.~~

12. (Currently amended) ~~A method as described in claim 6,~~A method for monitoring performance of an optical network, comprising the steps of:

(a) intensity modulating each of optical wavelength channels of an optical signal, traveling through a section of a fiber between two nodes in the optical network, with the same fiber identification (FID) tone, which is a low frequency dither tone whose frequency is unique to the fiber section;

~~further comprising the steps of:~~

(b) measuring a power levels of the FID tones at ~~FID frequencies~~various locations in the optical network; and

(c) indicating the possibility of one or more of the following:

(i) athe fiber section failure if the FID tone ~~for the fiber section~~ is not present;

(ii) an amplifier failure in the optical network if combined power levels of different FID tones at different dither tone frequencies decrease substantially uniformly;

(iii) a transponder failure if the power level of the ~~corresponding~~ FID tone decreases provided that no ~~channels~~optical wavelength channels are being dropped from the respective network node; ~~and~~or

(iv) adding or dropping optical wavelength channels to the fiber sections if the power levels of the ~~corresponding~~ FID tones changes.

12a. (new) The method as described in claim 12, wherein the step (a) further comprises equalizing power levels of said optical wavelength channels.

12b. (new) The method as described in claim 12a, wherein the step (a) comprises intensity modulating optical signals traveling through different fiber sections in the optical network with FID tones having different dither tone frequencies and same modulation depth.

12c. (new) The method as described in claim 12b, further comprising the step of visualizing an approximate traffic load through different fiber sections in the optical network by comparatively displaying power levels of FID tones at different FID tone frequencies, thus indicating that fiber sections having higher power levels of the FID tones carry larger numbers of optical wavelength channels.

13. (Canceled) ~~A system for monitoring performance of an optical network, comprising:~~

~~means for marking an optical signal, traveling through a section of fiber, with a fiber identification tag which is unique to the fiber section; and~~

~~means for detecting the fiber identification tag at various locations in the network.~~

14. (Canceled) ~~A system as described in claim 13, wherein the means for marking comprises an encoder for encoding a low frequency dither signal onto the optical signal, and the means for detecting comprises a decoder for decoding said low frequency dither signal.~~

15. (Canceled) ~~A system as described in claim 14, wherein the encoder comprises one of the following: high-speed e-VOA (variable optical attenuator), Mach-Zehnder modulator and electro-absorption modulator.~~

16. (Canceled) ~~A method for monitoring performance of an optical network, comprising the steps of:~~

~~marking an optical signal, traveling through a section of fiber in a bundle of fibers, with a bundle identification (BID) tag which is unique to the bundle section; and~~

~~detecting the bundle identification tag at various locations in the network~~.

17. (Canceled) ~~A method as described in claim 16, wherein the step of marking comprises modulating the optical signal with a low frequency dither signal, whose frequency is unique to the bundle section.~~

18. (Canceled) ~~A system for monitoring performance of an optical network, comprising:~~

~~means for marking an optical signal, traveling through a section of fiber in a bundle of fibers, with a bundle identification (BID) tag which is unique to the bundle section; and~~

~~means detecting the bundle identification tag at various locations in the network.~~

19. (Canceled) ~~A system as described in claim 18, wherein the means for marking comprises an encoder for encoding a low frequency dither signal onto the~~

~~optical signal, and the means for detecting comprises a decoder for decoding said low frequency dither signal.~~

20. (Canceled) ~~A method for determining a topology of an optical network, comprising the steps of:~~

~~marking an optical signal with a channel identification (CID) tag which is unique to the optical signal;~~

~~marking said optical signal, traveling through a fiber section, with a fiber identification (FID) tag which is unique to the fiber section; and~~

~~detecting the tags at various locations in the network, thereby determining a path of said optical signal in the network.~~

21. (Canceled) ~~A method as described in claim 20, further comprising the step of marking said optical signal, traveling through a fiber section in a bundle section, with a bundle identification (BID) tag which is unique to the bundle section, the step of marking with the BID tag being performed before the step of detecting.~~